

AUSTRAL HEPATICAE XIII.

TWO NEW GENERA OF GEOCALYCEAE (LOPHOCOLEACEAE)*

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The largely Gondwanalandic taxa of the perianth-bearing Geocalyceae--belonging to the subfamilies Lophocoleoideae and Leptoscyphoideae (Schuster, 1980)--have been twice provided with a genus key (Schuster, 1980; a few weeks later by Engel, 1980). Some 15 genera are involved, several of which remain poorly known. In addition, we are currently studying the phylogenetic contact points of two other, apparently monotypic, entities which seem to represent autonomous genera. We project a future detailed contribution dealing with, especially, temperate-Gondwanalandic Geocalyceae; in the meantime the following two generic entities must be provided with Latin diagnoses and preliminary statements as to affiliations.

The two new genera, both highly unusual in their scattered rhizoids, exist in cool sectors of Gondwanaland; in these genera we find common occurrence of a vestigial or very small gynoeceial bracteole (e.g., the gynoeceium is strongly bilateral) linked with a Leptoscyphoid, laterally compressed perianth. The combination of these two criteria suggests an affinity to Pedinophyllum, yet we believe that there is little or no phylogenetic connection to that genus. These two genera share a series of criteria, as follows:

Plants medium-sized, green to brownish. Stem with either a weakly developed, 1-2-layered cortex or a 2-3-layered, rigid cortex. Branches at least in part lateral-intercalary (in Pedinophyllopsis abditus mostly lateral-terminal; in Pseudolophocolea denticulata almost all lateral-intercalary); gynoeceia always with subfloral innovations, which are at least usually ventral-intercalary. Rhizoids long, mostly scattered. Leaves alternate, antically short-decurrent, concave to flat to faintly convex, entire-margined or 2-3-dentate distally. Underleaves very small, remote, narrower than stem, bifid almost to base, lobes linear to setaceous, sometimes with 1(2) small accessory, short teeth. Cells thin-walled and with small trigones (usually concave-sided, rarely faintly bulging); oil-bodies large, finely granular-botryoidal. No asexual reproduction. Dioecious. Androeceia slender, with a few pairs of concave bracts, with or

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without paraphyses. Gynoecia terminal on leading axes, with ventral-intercalary innovations. Bracteole vestigial or very small, free, irregularly 2-3-4-lobulate-dentate to lacinulate. Perianth Leptoscyphoid: laterally compressed, usually with a narrow, third (ventral) face distinct, bilabiate, very wide at mouth.

For a period exceeding a decade we have pondered whether the two species, that fit the preceding diagnosis, here placed into two genera, should be regarded as subgenera of a single genus, or as autonomous genera. Study of living plants of both entities by one of us [RMS] has, finally, resolved what was a long moot situation. Oil-body criteria suggest two distinct genera are at hand. The basic criteria of these emerge from the subjoined key:

Key to Genera

1. Cells each with 8-14 medium-sized oil-bodies. Branching lateral-intercalary, except for the ventral-intercalary gynoecial innovations; leaves 2-3-denticulate at apex, laterally patent, faintly convex, the plant dorsiventrally flattened; stem with a feebly developed 1-2-stratose cortex; lobule of ♂ bracts without or with a weak tooth. Pseudolophocolea Schust. & Engel, gen. n.
1. Cells each with 1 or 2 exceedingly large oil-bodies, nearly filling lumen. Branching predominantly lateral-terminal, in small part lateral-intercalary, except for the ventral-intercalary gynoecial innovations; leaves edentate and unlobed, antically assurgent, the plant strongly laterally compressed; stem with well-developed 2-3-layered cortex; lobule of ♂ bracts ciliate-dentate. Pedinophylloopsis Schust. & Inoue, gen. n.

Pseudolophocolea Schust. & Engel, gen. nov.

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Planta dorsiventraliter complanata. Folia alternata, lineis insertionis ad medium dorsale caulis non attingentibus, caulina lateraliter patentia, aliquantum convexa, ad apicem 2-3-dentata; cellulae corporibus oleosis mediocribus granularibus 8-14 instructae. Partes vegetativas et involucales valde bilaterales, ambae appendicibus ventralibus reductis instructae; amphigastria caulina libera, parva, ciliis paucis composita; amphigastria involucria admodum reducta, 10% quam area bractearum minora. Rami vegetativi laterales intercalares, sed innovationes gynoeciorum ventrales intercalares. ♂ Lobuli bractearum anteriores edentati vel dente singulari indistincto instructi. Gynoecia lateraliter compressa; perianthia Leptoscyphis similia superficie ventrali angusta reducta.

Typus (species unica): Pseudolophocolea denticulata Schust. & Engel, sp. nov. ~~~~~

The above diagnosis is a descriptio generico-specifica.

The flattened, dorsiventral shoots, the Leptoscyphoid perianth, the very small underleaves and  $\sigma$  bracts, and the scattered rhizoids all suggest Pedinophyllum, as does the "leaf-free" dorsal strip. The lack of a well-defined cortex is also as in that genus. Yet the fuscous color, the tridentate lateral leaves, and the much different  $\sigma$  bracts suggest that any affinity to Pedinophyllum is remote. The aspect of the plants is Lophocoleoid--yet the scattered rhizoids suggest that no clear affinity to Lophocolea et al. or Leptoscyphus et al. is possible. All in all, a remarkable taxon, with reticulate and disturbing affinities to both Leptoscyphoideae (in Geocalycaceae) and Pedinophyllum (in Plagiochilaceae).

Pedinophyllopsis Schust. & Inoue, gen. nov.<sup>1)</sup>  
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Planta lateraliter compressa, omnino viridula, pigmento fusco destituta. Folia caulina assurgentia, indivisa, margine integra, aliquantum concava. Cellularum corpora oleosa, magna, disciformia, subtiliter granularia, unum vel duo fere lumina cellularum obliterantia. Partes vegetativas et involucales admodum bilaterales, ambae appendicibus ventralibus parvis reductis instructae. Rami vegetativi pro parte maxima terminales laterales, interdum intercalares laterales, sed σ innovationes gynoeciorum intercalares ventrales. σ Lobuli bractearum anteriores ad marginem perspicue multiciliati. Gynoecia lateraliter compressa superficie ventrali vestigiali vel evidenter absente.

Typus: Plagiochila abdita Sull. Hooker's Jour. Bot. Kew Gardens Misc. 2: 317. 1850 = Leptoscyphus abditus (Sull.) Dugas, Annls. Sci. Nat. X. 11: 8. 1929 = Pedinophyllopsis abditus (Sull.) Schust. & Inoue, comb. nov.

Pedinophyllopsis abditus (Sull.) Schust. & Inoue is a very isolated element within the family.

¹⁾ More than eight years ago, Dr. H. Inoue and the senior author initiated a study of Australasian taxa with Leptoscyphoid perianths. One of us [RMS] already had a manuscript and plates of Pedinophyllopsis; the other taxa, still unclarified, were to be studied by Dr. Inoue; this study has never materialized. For the moment it seems necessary to validate Pedinophyllopsis, since the name has already been used several times in the last eight years, in the literature.

Grolle (1962) placed the type species into an autonomous subgenus of Leptoscyphus, on the basis, i.a., of "die nur terminal-laterale Verzweigung." Actually, many if not most, lateral branches are terminal, Frullania type (the associated hemiphyl is distinctly narrower than a normal leaf). The very few species of Leptoscyphus we have seen have a number of medium-sized, finely to coarsely botryoidal oil-bodies per cell. In Pedinophyllopsis there are only 1-2 gigantic, platelike, ovoid to discoidal oil-bodies, each finely granular, the oil-bodies almost obscuring the cell lumen.

Literature Cited

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